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Further Remarks on Family Nomenclature.

By Dr. V. Havard.

It is generally admitted that the animal and vegetable kingdoms cannot be classified on the same lines and divided into groups of the same value. Species and genera are nearly identical in the two kingdoms, but as we rise above genera the similarity is less apparent and the higher we go the more doubtful becomes the analogy between the groups, so that near the summit of the scale no comparison is possible. This is due to the great dissimilarity in the nature of the organisms, the infinitely more numerous and varied functions of animals and the greater difficulty of ascertaining their natural relationship. From these considerations it follows that the application to both kingdoms of one uniform and identical nomenclature is impracticable; but, were it otherwise, the desirability of different and distinctive endings would still be manifest.

Zoölogists appear to have reached a satisfactory uniformity in the terminations of the names of their principal groups. As early as 1845, the Association of American Naturalists, convened at New Haven, adopted the following proposition:

"It is recommended that names of families should end uniformly in *idae* and sub-families in *inae*."

These endings were then in general use; they were confirmed at the meeting of the A. A. A. S., in 1877, and are now invariably accepted. The name of the family or sub-family is *always* that of one of its genera with the above endings. It is to be noticed, however, that animal families usually contain but few genera, not rarely only 2 or 3, often only 3 to 5, and seldom more than 10 or 15. Perhaps they might be more correctly assimilated to botanical tribes. The term *tribe* appears to be very seldom used by zoölogists, the name of the group intermediate between the family and genus being mostly *sub-family* in *inae*.

A cause of confusion, as pointed out by Mr. L. M. Underwood in the March Bulletin, is the variable conception of *order*, being considered by phanerogamic botanists a synonym of *family*, while, by zoölogists and the majority of cryptogamists, it is applied to the next higher group above family. It seems to me that a desirable step in the direction of uniformity would be taken if all botanists would, in this regard, conform to the usage of zoölogists; for, although we need not strive after similarity of nomenclature in the two kingdoms, yet we should avoid, so far as practicable, the use of the same appellations with a distinctly differeut meaning.

The termination in *aceae* is the one now generally accepted by botanists for family names. It is strictly in accordance with good Latin and otherwise unobjectionable. The vexed question is, can it and must it be applied in all cases? A. de Candolle in his "Laws of Botanical Nomenclature" (1867) establishes three exceptions:

1st. When the genus from which is derived the family name ends in *ix* or *is* (genitive *icis*, *idis* or *iscis*) the termination *iceae*, *ideae* or *ineae* is admitted: SALICINEAE, BERBERIDEAE, TAMARISCINEAE.

2d. When the genus from which the family name is derived has a name of unusual length, and there is no tribe founded upon it, the termination in *eae* is admitted: DIPTEROCARPEAE from *Dipterocarpus*.

3d. For a few large families, named long ago, and now everywhere known under their irregular names, the latter are maintained: CRUCIFERAE, LEGUMINOSAE, GUTTIFERAE, UMBELLIFERAE, COMPOSITAE, LABIATAE, CUPULIFERAE, CONIFERAE, PALMAE, GRAMINEAE.

These exceptions, when formulated, expressed the best conservative usage of the day, but it is apparent they have lost much of their strength and I doubt whether their illustrious author would now insist upon the first two. The first has long since been disregarded; thus in Gray's Manual, as well as in Pflanzenfamilien and Baillon's Histoire des Plantes, we have SALICACEAE, BERBERIDACEAE, PLANTAGINACEAE, ORCHIDACEAE, AMARYLLIDACEAE, etc. The length of the name is a point upon which we need not dwell; so long as a name is correctly constructed the number of syllables cannot be of much moment; thus in Baillon's Histoire we have DIPTEROCARPACEES and CENTROLEPIDACEES, and in Pflanzenfamilien, POTAMOGETONACEAE, HYDROCHARITACEAE, etc. It is therefore obvious that whenever the name of a family is derived from that of a genus the termination in *aceae* is applicable *without exception.*

The third exception presents serious difficulties. Here the family name is descriptive, that is, not based upon a genus but derived from some structural characteristic. Can the ending *aceae* be applied to it? This ending (from *akos* or *acus*) is an adjective-suffix, and therefore only applicable to a substantive, *e. g.*: *rosa, rosaceus; lilium, liliaceus*, &c., the e being inserted for reasons of enphony. It cannot be affixed to adjectives (like *compositus, coniferus, leguminosus, gramineus*, &c.), and such names as COMPOSITACEAE, CONIFERACAE, &c., with two adjective terminations, are obviously inadmissible. But it happens that all family descriptive names (COMPOSITAE excepted) are based upon a substantive (*conus, umbella, crux, legumen, labium, cupula, gramen*, &c.), so that we can replace the ordinary and variable adjective-ending by the uniform *aceae* and correctly form such family names as CONACEAE, UMBELLACEAE, LEGUMINACEAE, practically equivalent to CONIFERAE, UMBELLIFERAE, LEGUMINOSAE. The principle was recognized by Linnaeus who adopted such descriptive names as AMENTACEAE PAPILIONACEAE, SPATHACEAE, &c.

But admitting, as we may, that CONACEAE and LEGUMINACEAE are as correctly constructed as ROSACEAE and LILIACEAE, it is still true that, although with the same ending, they convey an entirely different meaning; the former are plants *with* cones, *bearing* legumes, while the latter are plants *like* the Rose, *similar to* the Lily; the former imply the possession of a certain character, the latter imply similitude to a type genus. Clearly this is not admissible. The uniformity we are striving for must be not only in outward form but likewise in the mode of construction and inward meaning.

We are thus forced to the conclusion that the ending *aceae* is inapplicable to the names under consideration, and that no change in their construction is possible or advisable. What is then to be done? Two alternatives offer themselves: Leave them alone, as they have stood for several generations of botanists, or abolish and replace them by the first published generic names as proposed by Mr. Barnhart. The latter course will commend itself to all who think uniformity essential, and is urged upon us by the example of zoölogists, but such a radical change will not be easily acquiesced in. In the case of zoölogists, the family usually containing only few genera, it is comparatively easy to adopt the name of one of them for that of the family, and, as a rule, the characters of the adopted genus will not as widely differ from those of the other genera as, say, *Fragaria* does from *Prunus*, *Cassia* from *Trifolium* or *Pinus* from *Ginkgo*, so that such name is readily acceptable as representative of the family. It happens that the botanical families in question are among the largest of the vegetable world and it seems difficult to recognize CASSIACEAE as the representative of all LEGUMINOSAE, and AMMIACEAE as that of all UMBELLIFERAE. The difficulty would be lessened if botanists, instead of extending the boundaries of families as has been the tendency in recent times, endeavored to restrict them to the lowest admissible limits, those, for instance, of several of our well defined suborders.

I am not prepared to make a choice between the two alternatives. Perhaps a majority of botanists would now prefer that the old familiar names be maintained. Be that as it may, a decision will soon impose itself and, judging from the present trend of thought, at least in this country, it is safe to predict that long and honorable usage will eventually be sacrificed to the claims of uniformity and stability.

If we admit the law that the family name must in all cases be based upon that of a recognized genus, we still have difficulties to surmount; what is a "recognized" genus? The comparative instability of genera is well known; authors do not agree upon their value and limitations; should the family name be exposed to this insecurity? The danger of possible changes from that source is very much mitigated by A. De Candolle's law:

"An old genus name which has become the name of a section or species can be maintained as the radical of a family name: LENTIBULARIACEAE from *Lentibularia*, HIPPOCASTANACEAE from *Aesculus Hippocastanum*, CARYOPHYLLACEAE from *Dianthus Caryophyllus*, etc."

If this law can be accepted by nomenclature reformers, their path will be made much smoother and we shall be the more readily inclined to follow them thereon.